SWEDISH HOUSE OF FINANCE | STOCKHOLM SCHOOL OF ECONOMICS

The Swedish House of Finance (SHoF) offers within its Doctoral Course Program in Finance a course in

Topics in Asset Pricing (PhD course)

Schedule:

10:00—12:00 and 13:00—16:00 in Fama

January 16: Asset pricing in decentralized markets (Vincent Maurin)
January 23:Limits to arbitrage and bubbles (Jungsuk Han)
January 30: Household finance (Paolo Sodini)
February 6: Bayesian methods in asset pricing (Irina Zviadadze)
February 13: Equity return predictability (Riccardo Sabbatucci)
February 20: Predictability in the FX market (Magnus Dahlquist)
February 27: Higher order moments of equity returns (Michael Halling)
March 6: Time-inconsistent preferences (Tomas Björk)

To pass the course, students are supposed to attend all the lectures, complete assigned readings, and submit four assignments. There will be seven assignments offered and students are free to choose which ones they would like to complete and submit. For every unattended class students are supposed to complete an extra assignment.

Syllabus

Day 1: Decentralized markets

Since the recent financial crisis, the literature on financial Over-the-Counter markets has grown tremendously. We will survey empirical works such as Li and Schuerhoff (2014) and Craig and von Peter (2014) to highlight some stylized facts. In particular, the structure of the trading network seems crucial to explain price dispersion, bid-ask spreads and intermediation patterns. In the second part of the course, we will cover recent models of over the counter markets. Duffie et al.(2005) and followers describe traders interactions as the result of a search process. Network models, surveyed by Condorelli and Galeotti (2016), take trading relationships as given to rationalize the distribution of prices, volumes and liquidity (see also Malamud and Rostek, 2016). More recently, works by Chang and Zhang (2016) and others seek to explain the emergence of the network structure itself. Finally, we will discuss recent policy issues such as the move towards CCP-based trading.

References

- Chang, B. and S. Zhang (2016): "Endogenous Market Making and Network Formation," Working papers.
- Condorelli, D. and A. Galeotti (2016): "Strategic Models of Intermedia- tion Networks," in The Oxford Handbook of the Economics of Networks, ed. by
- Y. Bramoull´e, A. Galeotti, and B. Rogers, Oxford University Press, chap. Craig, B. and G. von Peter (2014): "Interbank tiering and money center banks," Journal of Financial Intermediation, 23, 322–347.
- Duffie, D. (2012): Dark Markets: Asset Pricing and Information Transmission in Over-the-Counter Markets, no. 9623 in Economics Books, Princeton University Press.
- Duffie, D., N. Gaˆrleanu, and L. H. Pedersen (2005): "Over-the-Counter Markets," Econometrica, 73, 1815–1847.
- Li, D. and N. Schuerhoff (2014): "Dealer Networks," Tech. rep.

Malamud, S. and M. Rostek (2016): "Decentralized Exchange," Working paper

Day 2: Limits to arbitrage and bubbles

This session has a general theme of inefficient markets and the violations of the law of one price. The first part will cover theories related to limits to arbitrage. The second part will cover theories related to bubbles and asset overvaluations. We will study some classical works in the field, and also try to connect them with more modern approaches.

References:

- De Long, J. B., A. Shleifer, L. H. Summers, and R. J. Waldmann, 1990, "Noise Trader Risk in Financial Markets," Journal of Political Economy, 98(4), 703–738.
- Shleifer, A., and R. W. Vishny, 1997, "The Limits of Arbitrage," Journal of Finance, 52(1), 35–55.
- Gromb, D., and D. Vayanos, 2002, "Equilibrium and welfare in markets with financially constrained arbitrageurs," Journal of Financial Economics, 66(2-3), 361–407.
- Loewenstein, M., and G. A. Willard, 2006, "The Limits of Investor Behavior," Journal of Finance, 61(1), 231–258
- Harrison, J. M., and D. M. Kreps, 1978, "Speculative Investor Behavior in a Stock Market with Heterogeneous Expectations," Quarterly Journal of Economics, 92(2), 323–336.
- Blanchard, O. J., and M. W. Watson, 1982, "Bubbles, Rational Expectations and Financial Markets," in Crises in the Economic and Financial Structure, ed. by P. Wachtel. Lexinton Books, Lexington, Mass.
- Tirole, J., 1985, "Asset Bubbles and Overlapping Generations," Econometrica, 53(6), 1499–1528.
- Santos, M. S., and M. Woodford, 1997, "Rational asset pricing bubbles," Econometrica, 65(1), 19–57.
- Allen, F., and D. Gale, 2000, "Bubbles and Crises," Economic Journal, 110(460), 236–255.

Day 3: Household finance

Household finance studies how households should use financial markets to achieve their goals and how do they actually do it.
The course will review theoretically and empirically various financial decisions relevant to household finances. Financial risk taking and the heterogeneity of household risk preferences. Rebalancing over time and over the life cycle. Diversification and hedging.

References:

- Guiso L., and P. Sodini, Household Finance: an Emerging Field, *Handbook of the Economics of Finance*, edited by Constandinides, G., M. Harris and R. Stulz, Elsevier, 2013
- Calvet, L., and P. Sodini Twin Picks: Disentangling The Determinants of Risk Taking in Household Portfolios, *Journal of Finance*, Vol. 69, No. 2 pp. 867-906, April 2014
- Calvet L., and J. Campbell, P. Sodini, Down or Out: Assessing The Welfare Costs of Household Investment Mistakes, *Journal of Political Economy*, Vol. 115 No. 5 pp. 707-747, October 2007
- Betermier, S. and L. Calvet, and P. Sodini, Who are the Value and Growth Investors?, with *Journal of Finance*, forthcoming
- Calvet L., and J. Campbell, P. Sodini, Fight or Flight? Portfolio Rebalancing by Individual Investors, *Quarterly Journal of Economics*, Vol. 124 No. 1 pp. 301-348, February 2009

Day 4: Bayesian methods in asset pricing

Modern asset pricing models (e.g., reduced-form jump-diffusion models, e.g, Eraker, Johannes, and Polson (2003) and macro-based models, e.g., Bansal-Yaron (2004)) feature multiple sources of risk and latent states. Standard techniques, such as maximum likelihood and GMM are not suitable to estimate these models. We will study how to estimate and test these models by using Bayesian methods. We will discuss how to estimate parameters, latent states, and quantify statistical uncertainty.

References:

- Eraker, Johannes, Polson, The Impact of Jumps in volatility and returns, 2003, Journal of Finance, LVIII, 1269—1300
- Gamerman, Dani and Hedibert Lopes, Markov Chain Monte Carlo. Stochastic valuation for Bayesian Inference, 2006, Chapman and Hall/CRC
- Jacquier Eric, and Nicholas Polson, and Peter Rossi, Bayesian analysis of stochastic volatility models with fat-tails and correlated errors, 2004, Journal of Econometrics, 122, 185--212
- Johannes, Michael and Nicholas Polson, MCMC methods for financial econometrics, 2009, Handbook of Financial Econometrics (eds Ait-Sahalia and L.P. Hansen), 1—72
- Zviadadze, Irina, Term structure of consumption risk premia in the term structure of currency returns, forthcoming in Journal of Finance

Day 5: Time Series Predictability

- Theory: what does "returns are predictable" mean? (e.g., time-varying returns, market inefficiency, slow diffusion of information)
- In-sample predictability vs. Out-of-Sample predictability
- Statistical vs. Economic Significance of Predictability
- Intro to Statistical Learning: model selection

Cross-sectional return predictability

- Factor models
- Cross-sectional anomalies: A list
- Spurious factors – data mining considerations

Required readings:

- Cochrane notes on predictability: (http://faculty.chicagobooth.edu/john.cochrane/teaching/35150_advanced_investments/week_1_notes.pdf)
- Goyal, Amit, and Ivo Welch, 2008, A comprehensive look at the empirical performance of equity premium prediction, The Review of Financial Studies 21(4), 1455-1508.
- Chapter 1-2-3-5-6 of An Introduction to Statistical Learning by James, Witten, Hastie, Tibshirani (Springer, 2015)
- Ang, A., Hodrick, R. J., Xing, Y. and Zhang, X. 2006, The Cross-Section of Volatility and Expected Returns, The Journal of Finance, 61: 259–299.
- Campbell R Harvey, Yan Liu, Heqing Zhu 2016, ... and the Cross-Section of Expected Returns, Review of Financial Studies, 29(1): 5-68.

Day 6: Predictability in the FX market

We will study the predictability of currency returns in the cross section as well as in the time series. We begin by reviewing classical results on the time series predictability and the forward premium puzzle. We then consider common strategies such as carry, momentum, and value. We finally apply modern predictability results on foreign exchange rates and challenge standard asset pricing models.

Suggested readings:

- Dahlquist Magnus, and Henrik Hasseltoft, 2016, Economic Momentum and Currency Returns, Working Paper.
- Dahlquist Magnus, and Julien Penasse, 2016, The Missing Risk Premium in Exchange Rates, Working Paper.
- Engel, Charles, 2014, Exchange Rates and Interest Parity, in Elhanan Helpman,
- Lustig, Hanno, Nikolai Roussanov, and Adrien Verdelhan, 2011, Common Risk Factors in Currency Markets, Review of Financial Studies 24, 3731-3777.
- Verdelhan, Adrien, 2010, A Habit-Based Explanation of the Exchange Rate Risk Premium, The Journal of Finance 65, 123-146.

Day 7: Higher order moments of equity returns

In standard/traditional asset pricing, only averages, standard deviations and covariances of return distributions are taken into consideration. In recent years, however, higher moments and co-moments of return distributions have also been shown to matter from a theoretical and, mostly, empirical point of view. Those higher moments and co-moments include skewness, kurtosis, co-skewness and co-kurtosis. The discussion of higher-order moments is also related to the notion of crash or jump risk. In this session, we will review some of the basic concepts and economic questions related to higher-order moments of (equity) returns. For example, we will discuss whether higher-order moments matter for cross-sectional differences in expected rates of return. Of course, we will also briefly review some theoretical literature on why higher-order moments could or should potentially matter for asset pricing.

Related literature

- Bakshi, G., Kapadia, N. and Madan, D. (2003). Stock Return Characteristics, Skew Laws, and the Differential Pricing of Individual Equity Options, Review of Financial Studies 16(1): 101 – 143.
- Boyer, B., Mitton, T. and Vorkink, K. (2010). Expected Idiosyncratic Skewness, Review of Financial Studies 23(1): 169–202.
- Brunnermeier, M. K., Gollier, C. and Parker, J. A. (2007). Optimal Beliefs, Asset Prices, and the Preference for Skewed Returns, American Economic Review 97(2): 159–165.
- Conrad, J., Dittmar, R. F. and Ghysels, E. (2013). Ex Ante Skewness and Expected Stock Returns, Journal of Finance 68 (1): 85–124.
- Dittmar, R. F. (2002). Nonlinear Pricing Kernels, Kurtosis Preference, and Evidence from the Cross Section of Equity Returns, Journal of Finance 57(1): 369–403.
- Harvey, C. R. and Siddique, A. (2000). Conditional Skewness in Asset Pricing Tests, Journal of Finance 55 (3): 1263–1295.
- Kraus, A. and Litzenberger, R. H. (1976). Skewness Preference and the Valuation of Risky Assets, Journal of Finance 31(4): 1085–1100.

Day 8: Time-inconsistent preferences

The lecture is going to be based on my joint work with Agatha Murgoci and Mariana Khapko entitled "Time inconsistent control with applications to equilibrium theory"

We develop a theory for stochastic control problems which, in various ways, are time inconsistent in the sense that they do not admit a Bellman optimality principle. We attach these problems by viewing them within a game theoretic framework, and we look for Nash subgame perfect equilibrium points.
For a general controlled Markov process and a fairly general objective functional we derive an extension of the standard Hamilton-Jacobi-Bellman equation, in the form of a system of non-linear equations, for the determination for the equilibrium strategy as well as the equilibrium value function. All known examples of time inconsistency in the literature are easily seen to be special cases of the present theory. We also study some concrete examples, and in particular we study a general equilibrium production model with time inconsistent preferences.